

1

SEQUENCE LISTING

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 SRINIVASAN, SUBHA

<120> NOVEL FIBROBLAST GROWTH FACTORS

<130> BERLx 87

<140> 10/005,646

<141> 2001-12-07

<150> 60/251,837

<151> 2000-12-08

<160> 16

<170> PatentIn Ver. 2.1

<210> 1

<211> 636

<212> DNA

<213> Unknown Organism

<220>

<221> CDS

<222> (1)...(633)

<220>

<223> Description of Unknown Organism: FGF-21 nucleotide
 sequence

<400> 1

atg gct ccc tta gcc gaa gtc ggg ggc ttt ctg ggc ggc ctg gag ggc 48
 Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly
 1 5 10 15

tgg ggc cag cag gtc ggt tgc cat ttc ctg ttg cct cct gcc ggg gag 96
 Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu
 20 25 30

cgg ccg ccg ctg ctg ggc gag cgc agg agc gcg gcg gag ccg agc gcg 144
 Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala
 35 40 45

cgc ggc ggg ccg ggg gct gcg cag ctg gcg cac ctg cac gcc atc ctg 192
 Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu
 50 55 60

cgc cgc ccg cag ctc tat tgc cgc acc gcc ttc cac ctg cag atc ctg 240
 Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu
 65 70 75 80

ccc gac gcc agc gtc cag gcc acc ccg cag gac cac agc ctc ttc ggt 288
 Pro Asp Gly Ser Val Gln Gly Thr Arg Gln Asp His Ser Leu Phe Gly
 85 90 95

2

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atc ttg gaa ttc atc agt gtg gca gtg gga ctg gtc agt att aga ggt 336
Ile Leu Glu Phe Ile Ser Val Ala Val Gly Leu Val Ser Ile Arg Gly
100 105 110

gtg gac agt ggt ctc tat ctt gga atg aat gac aaa gga gaa ctc tat 384
Val Asp Ser Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Tyr
115 120 125

gga tca gag aaa ctt act tcc gaa tgc atc ttt agg gag cag ttt gaa 432
Gly Ser Glu Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu
130 135 140

gag aac tgg tat aac acc tat tca tct aac ata tat aaa cat gga gac 480
Glu Asn Trp Phe Asn Thr Tyr Ser Ser Asn Ile Tyr Lys His Gly Asp
145 150 155 160

act ggc cgc agg tat ttt gtg gca ctt aac aaa gac gga act cca aga 528
Thr Gly Arg Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg
165 170 175

gat ggc gcc agg tcc aag agg cat cag aaa ttt aca cat ttc tta cct 576
Asp Gly Ala Arg Ser Lys Arg His Gln Lys Phe Thr His Phe Leu Pro
180 185 190

aga cca gtg gat cca gaa aga gtt cca gaa ttg tac aag gac cta ctg 624
Arg Pro Val Asp Pro Glu Arg Val Pro Glu Leu Tyr Lys Asp Leu Leu
195 200 205

atg tac act tga 636
Met Tyr Thr
210

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<210> 2
 <211> 211
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: FGF-21 amino acid
 sequence

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<400> 2
Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly
1 5 10 15

Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu
20 25 30

Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala
35 40 45

Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu
50 55 60

Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu
65 70 75 80

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3

Pro Asp Gly Ser Val Gln Gly Thr Arg Gln Asp His Ser Leu Phe Gly
85 90 95

Ile Leu Glu Phe Ile Ser Val Ala Val Gly Leu Val Ser Ile Arg Gly
100 105 110

Val Asp Ser Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Tyr
115 120 125

Gly Ser Glu Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu
130 135 140

Glu Asn Trp Tyr Asn Thr Tyr Ser Ser Asn Ile Tyr Lys His Gly Asp
145 150 155 160

Thr Gly Arg Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg
165 170 175

Asp Gly Ala Arg Ser Lys Arg His Gln Lys Phe Thr His Phe Leu Pro
180 185 190

Arg Pro Val Asp Pro Glu Arg Val Pro Glu Leu Tyr Lys Asp Leu Leu
195 200 205

Met Tyr Thr
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<210> 3
<211> 513
<212> DNA
<213> Unknown Organism

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<221> CDS
<222> (1)..(510)

<220>
<223> Description of Unknown Organism: FOP-23 nucleotide
sequence

<400> 3
atg cgc cgc cgc ctg tgg ctg ggc ctg gcc tgg ctg ctg ctg ggc cgg 48
Met Arg Arg Arg Leu Trp Leu Gly Leu Ala Trp Leu Leu Leu Ala Arg
1 5 10 15

gcg ccg gac gcc cgc gga acc ccg agc gcg tgg cgg gga ccg cgc agc 96
Ala Pro Asp Ala Ala Gly Thr Pro Ser Ala Ser Arg Gly Pro Arg Ser
20 25 30

tac ccg cac ctg gag ggc gac gtg cgc tgg cgg cgc ctc ttc tcc tcc 144
Tyr Pro His Leu Glu Gly Asp Val Arg Trp Arg Arg Leu Phe Ser Ser
35 40 45

4

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act cac ttc ttc ctg cgc gtg gat ccc ggc ggc cgc gtg cag ggc acc 192
Thr His Phe Phe Leu Arg Val Asp Pro Gly Gly Arg Val Gln Gly Thr
50 55 60

cgc tgg cgc cac ggc cag gac agc atc ctg gag atc cgc tct gta cac 240
Arg Trp Arg His Gly Gln Asp Ser Ile Leu Glu Ile Arg Ser Val His
65 70 75 80

gtg ggc gtc gtg gtc atc aaa gca gtg tcc tca ggc ttc tac gtg gcc 288
Val Gly Val Val Ile Lys Ala Val Ser Gly Phe Tyr Val Ala
85 90 95

atg aac cgc cgg ggc cgc ctc tac ggg tgg cga ctc tac acc gtg gac 336
Met Asn Arg Arg Gly Arg Leu Tyr Gly Ser Arg Leu Tyr Thr Val Asp
100 105 110

tgc agg ttc cgg gag cgc atc gaa gag aac ggc cac aac acc tac gcc 384
Cys Arg Phe Arg Glu Arg Ile Glu Glu Asn Gly His Asn Thr Tyr Ala
115 120 125

tca cag cgc tgg cgc cgc cgc ggc cag ccc atg ttc ctg gcg ctg gac 432
Ser Gln Arg Trp Arg Arg Gly Gln Pro Met Phe Leu Ala Leu Asp
130 135 140

agg agg ggg ggg ccc cgg cca ggc ggc cgg acg cgg cgg tac cac ctg 480
Arg Arg Gly Gly Pro Arg Pro Gly Gly Arg Thr Arg Arg Tyr His Leu
145 150 155 160

tcc gcc cac ttc ctg ccc gtc ctg gtc tcc tga 513
Ser Ala His Phe Leu Pro Val Leu Val Ser
165 170

<210> 4
<211> 170
<212> FRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: FGF-23 amino acid
sequence

<400> 4
Met Arg Arg Arg Leu Trp Leu Gly Leu Ala Trp Leu Leu Leu Ala Arg
1 5 10 15

Ala Pro Asp Ala Ala Gly Thr Pro Ser Ala Ser Arg Gly Pro Arg Ser
20 25 30

Tyr Pro His Leu Glu Gly Asp Val Arg Trp Arg Arg Leu Phe Ser Ser
35 40 45

Thr His Phe Phe Leu Arg Val Asp Pro Gly Gly Arg Val Gln Gly Thr
50 55 60

Arg Trp Arg His Gly Gln Asp Ser Ile Leu Glu Ile Arg Ser Val His
65 70 75 80

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5

Val Gly Val Val Val Ile Lys Ala Val Ser Ser Gly Phe Tyr Val Ala
85 90 95

Met Asn Arg Arg Gly Arg Leu Tyr Gly Ser Arg Leu Tyr Thr Val Asp
100 105 110

Cys Arg Phe Arg Glu Arg Ile Glu Glu Asn Gly His Asn Thr Tyr Ala
115 120 125

Ser Gln Arg Trp Arg Arg Gly Gln Pro Met Phe Leu Ala Leu Asp
130 135 140

Arg Arg Gly Gly Pro Arg Pro Gly Gly Arg Thr Arg Arg Tyr His Leu
145 150 155 160

Ser Ala His Phe Leu Pro Val Leu Val Ser
165 170

<210> 5

<211> 208

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-9 amino acid sequence

<400> 5

Met Ala Pro Leu Gly Glu Val Gly Asn Tyr Phe Gly Val Gln Asp Ala
1 5 10 15

Val Pro Phe Gly Asn Val Pro Val Leu Pro Val Asp Ser Pro Val Leu
20 25 30

Leu Ser Asp His Leu Gly Gln Ser Glu Ala Gly Gly Leu Pro Arg Gly
35 40 45

Pro Ala Val Thr Asp Leu Asp His Leu Lys Gly Ile Leu Arg Arg Arg
50 55 60

Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly
65 70 75 80

Thr Ile Gln Gly Thr Arg Lys Asp His Ser Arg Phe Gly Ile Leu Glu
85 90 95

Phe Ile Ser Ile Ala Val Gly Leu Val Ser Ile Arg Gly Val Asp Ser
100 105 110

Gly Leu Tyr Leu Gly Met Asn Glu Lys Gly Glu Leu Tyr Gly Ser Glu
115 120 125

Lys Leu Thr Gln Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp
130 135 140

6

Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Val Asp Thr Gly Arg
145 150 155 160

Arg Tyr Tyr Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Glu Gly Thr
165 170 175

Arg Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
180 185 190

Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp Ile Leu Ser Gln Ser
195 200 205

<210> 6

<211> 207

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-16 amino acid sequence

<400> 6

Met Ala Glu Val Gly Gly Val Phe Ala Ser Leu Asp Trp Asp Leu His
1 5 10 15

Gly Phe Ser Ser Ser Leu Gly Asn Val Pro Leu Ala Asp Ser Pro Gly
20 25 30

Phe Leu Asn Glu Arg Leu Gly Gln Ile Glu Gly Lys Leu Gln Arg Gly
35 40 45

Ser Pro Thr Asp Phe Ala His Leu Lys Gly Ile Leu Arg Arg Arg Gln
50 55 60

Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly Thr
65 70 75 80

Val His Gly Thr Arg His Asp His Ser Arg Phe Gly Ile Leu Glu Phe
85 90 95

Ile Ser Leu Ala Val Gly Leu Ile Ser Ile Arg Gly Val Asp Ser Gly
100 105 110

Leu Tyr Leu Gly Met Asn Glu Arg Gly Glu Leu Tyr Gly Ser Lys Lys
115 120 125

Leu Thr Arg Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp Tyr
130 135 140

Asn Thr Tyr Ala Ser Thr Leu Tyr Lys His Ser Asp Ser Glu Arg Gln
145 150 155 160

Tyr Tyr Val Ala Leu Asn Lys Asp Gly Ser Pro Arg Glu Gly Tyr Arg
165 170 175

Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val Asp
180 185 190

7

Pro Ser Lys Leu Pro Ser Met Ser Arg Asp Leu Phe His Tyr Arg
 195 200 205

<210> 7
 <211> 117
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: FGF-22

<220>
 <221> MOD_RES
 <222> (1)
 <223> Any amino acid

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 Arg Gly Val Ala Ser Arg Leu Tyr Leu Asp Ser Asn His Lys Gly Asp
 20 25 30
 Leu Tyr Ala Ser Val Arg Leu Ala Gln Glu Ser Val Phe Trp Gly Gln
 35 40 45
 Ser Glu Glu Asn Trp Ser Tyr Thr His Ser Ser Asn Leu Tyr Lys His
 50 55 60
 Val Asp Thr Arg Arg Arg Tyr Tyr Val Pro Leu Asn Gln Gly Ala Thr
 65 70 75 80
 Pro Ser Ala Gly Thr Arg Ser Leu Arg Arg Gln Asn Tyr Thr His Val
 85 90 95
 Leu Pro Arg Pro Val Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp
 100 105 110
 Ile Leu Ser Gln Ser
 115

<210> 8
 <211> 203
 <212> PRT
 <213> Xenopus laevis

<400> 8
 Met Ala Pro Leu Ala Asp Val Gly Thr Phe Leu Gly Gly Tyr Asp Ala
 1 5 10 15
 Leu Gly Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Lys Asp Ser
 20 25 30
 Pro Leu Leu Phe Asn Asp Pro Leu Ala Gln Ser Glu Arg Leu Ser Arg
 35 40 45

8

Ser Ala Pro Ser Asp Leu Ser His Leu Gln Gly Ile Leu Arg Arg Arg
 50 55 60

Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu Pro Asp Gly
 65 70 75 80

Asn Val Gln Gly Thr Arg Gln Asp His Ser Arg Phe Gly Ile Leu Glu
 85 90 95

Phe Ile Ser Val Ala Ile Gly Leu Val Ser Ile Arg Gly Val Asp Thr
 100 105 110

Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Phe Gly Ser Glu
 115 120 125

Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu Glu Asn Trp
 130 135 140

Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Gly Asp Ser Gly Arg
 145 150 155 160

Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Asp Gly Thr
 165 170 175

Arg Ala Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
 180 185 190

Asp Pro Glu Lys Val Pro Glu Leu Tyr Lys Asp Leu Met Gly Tyr Ser
 195 200 205

<210> 9

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 9

Leu Tyr Gly Ser

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<210> 10

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Illustrative peptide

<400> 10

His Phe Leu Pro

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<210> 11
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative peptide

<400> 11
 Val Gln Gly Thr Arg
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<210> 12
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative peptide

<400> 12
 Arg Ile Glu Glu Asn Gly His Asn Thr Tyr
 1 5 10

<210> 13
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative peptide

<400> 13
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<210> 14
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative peptide

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<210> 15
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
peptide

<400> 15
Ala Ala Glu Arg Ser Ala
1 5

<210> 16
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 6X His tag

<400> 16
His His His His His His
1 5